

Application No.: 10/611,979  
 Amdt. Dated: October 21, 2004  
 Reply to Office Action Dated: June 24, 2004

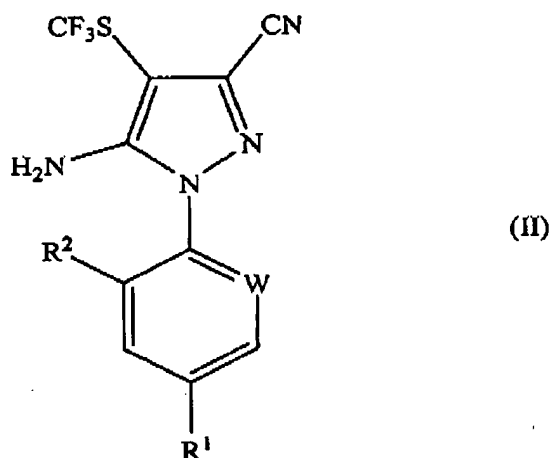
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### Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

### Listing of Claims:

Claim 1 (currently amended): A process (B) for the preparation of a compound having the formula (II):



wherein:

W is ~~nitrogen or~~ -CR<sup>3</sup>;

R<sup>1</sup> is halogen, haloalkyl, or haloalkoxy ~~haloalkoxy, R<sup>4</sup>S(O)<sub>n</sub> or SF<sub>5</sub>~~;

R<sup>2</sup> is hydrogen or halogen; and

R<sup>3</sup> is halogen;

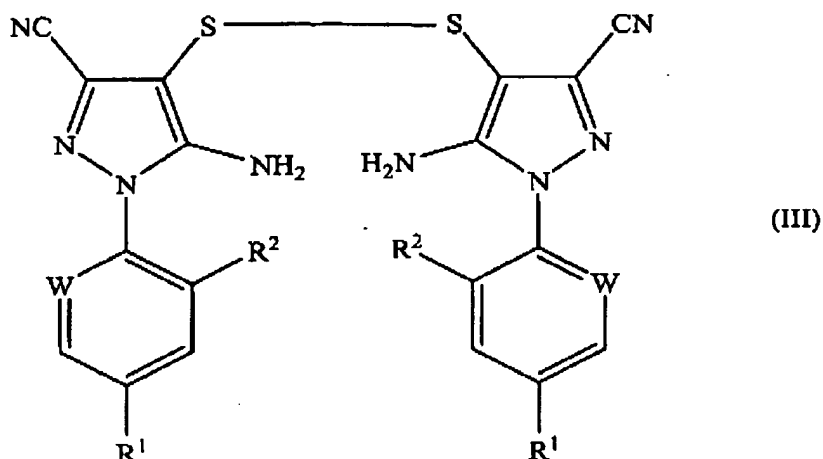
~~R<sup>4</sup> is alkyl or haloalkyl; and~~

~~n is 0, 1 or 2;~~

said process comprising adding sulfur dioxide to a mixture comprising a disulfide having the formula (III):

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wherein  $R^1$ ,  $R^2$  and W are as defined above, a formate salt, trifluoromethyl bromide and a polar solvent.

Claim 2 (original): A process according to Claim 1, wherein the solvent is N,N-dimethylformamide.

Claim 3 (original): A process according to Claim 1, wherein the reaction temperature during the addition of the sulfur dioxide is from about 35°C to about 55°C.

Claim 4 (original): A process according to Claim 2, wherein the reaction temperature during the addition of the sulfur dioxide is from about 35°C to about 55°C.

Claim 5 (original): A process according to Claim 1, wherein the sulfur dioxide is added over a period of from about 0.5 to about 2 hours.

Claim 6 (original): A process according to Claim 2, wherein the sulfur dioxide is added over a period of from about 0.5 to about 2 hours.

Claim 7 (original): A process according to Claim 3, wherein the sulfur dioxide is added over a period of from about 0.5 to about 2 hours.

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Claim 8 (original): A process according to Claim 4, wherein the sulfur dioxide is added over a period of from about 0.5 to about 2 hours.

Claim 9 (original): A process according to Claim 1, wherein the molar ratio of trifluoromethyl bromide to disulfide of formula (III) is from about 3:1 to about 5:1.

Claim 10 (original): A process according to Claim 2, wherein the molar ratio of trifluoromethyl bromide to disulfide of formula (III) is from about 3:1 to about 5:1.

Claim 11 (original): A process according to Claim 3, wherein the molar ratio of trifluoromethyl bromide to disulfide of formula (III) is from about 3:1 to about 5:1.

Claim 12 (original): A process according to Claim 5, wherein the molar ratio of trifluoromethyl bromide to disulfide of formula (III) is from about 3:1 to about 5:1.

Claim 13 (original): A process according to Claim 7, wherein the molar ratio of trifluoromethyl bromide to disulfide of formula (III) is from about 3:1 to about 5:1.

Claim 14 (original): A process according to Claim 1, wherein the amount of sulfur dioxide employed is from about 1.2 to about 1.5 molar equivalents relative to the disulfide of formula (III).

Claim 15 (original): A process according to Claim 2, wherein the amount of sulfur dioxide employed is from about 1.2 to about 1.5 molar equivalents relative to the disulfide of formula (III).

Claim 16 (original): A process according to Claim 3, wherein the amount of sulfur dioxide employed is from about 1.2 to about 1.5 molar equivalents relative to the disulfide of formula (III).

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Claim 17 (original): A process according to Claim 5, wherein the amount of sulfur dioxide employed is from about 1.2 to about 1.5 molar equivalents relative to the disulfide of formula (III).

Claim 18 (original): A process according to Claim 1, wherein the formate salt is an alkali metal or ammonium formate.

Claim 19 (original): A process according to Claim 2, wherein the formate salt is an alkali metal or ammonium formate.

Claim 20 (original): A process according to Claim 3, wherein the formate salt is an alkali metal or ammonium formate.

Claim 21 (original): A process according to Claim 5, wherein the formate salt is an alkali metal or ammonium formate.

Claim 22 (original): A process according to Claim 18, wherein the formate salt is sodium formate.

Claim 23 (original): A process according to Claim 19, wherein the formate salt is sodium formate.

Claim 24 (original): A process according to Claim 20, wherein the formate salt is sodium formate.

Claim 25 (original): A process according to Claim 21, wherein the formate salt is sodium formate.

Claim 26 (original): A process according to Claim 1, wherein the amount of formate salt employed is from about 4 to about 6 molar equivalents relative to the disulfide of formula (III).

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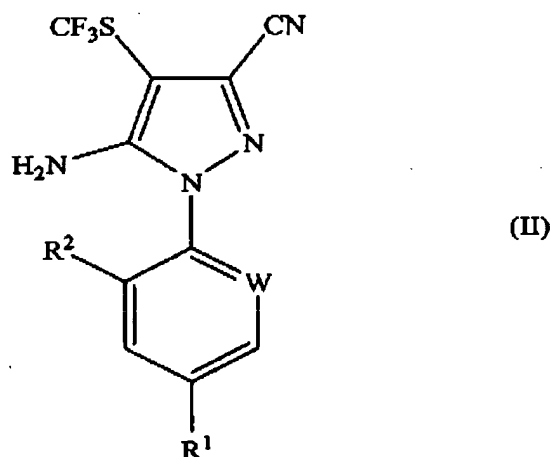
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Claim 27 (original): A process according to Claim 2, wherein the amount of formate salt employed is from about 4 to about 6 molar equivalents relative to the disulfide of formula (III).

Claim 28 (original): A process according to Claim 3, wherein the amount of formate salt employed is from about 4 to about 6 molar equivalents relative to the disulfide of formula (III).

Claim 29 (original): A process according to Claim 1, wherein the disulfide of formula (III) is 5-amino-1-(2,6-dichloro-4-trifluoromethylphenyl)-3-cyanopyrazol-4-yl disulfide and the compound of formula (II) is 5-amino-1-(2,6-dichloro-4-trifluoromethylphenyl)-3-cyano-4-trifluoromethylthiopyrazole.

Claim 30 (currently amended): A process (B) for the preparation of a compound having the formula (II):



wherein:

W is ~~nitrogen or~~  $-\text{CR}^3$ ;

$\text{R}^1$  is halogen, haloalkyl, or haloalkoxy ~~haloalkoxy,  $\text{R}^4\text{S}(\text{O})_n$  or  $\text{SF}_5$~~ ;

$\text{R}^2$  is hydrogen or halogen; and

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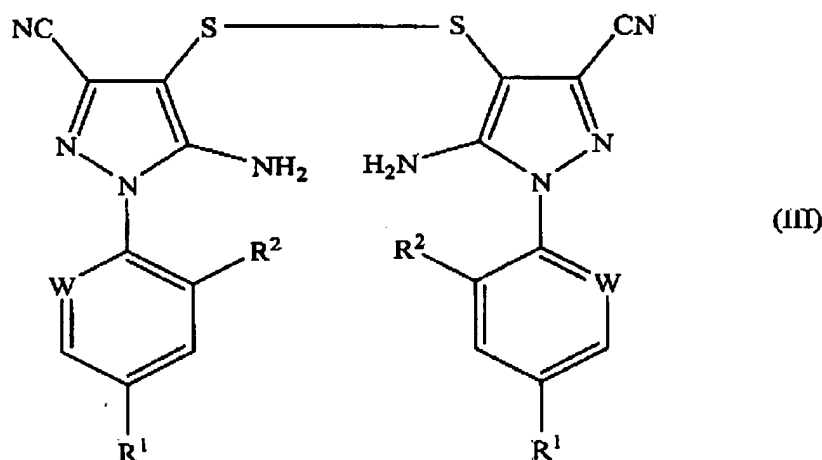
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$R^3$  is halogen;

$R^4$  is alkyl or haloalkyl; and

$n$  is 0, 1 or 2;

said process comprising adding sulfur dioxide to a mixture comprising a disulfide having the formula (III):



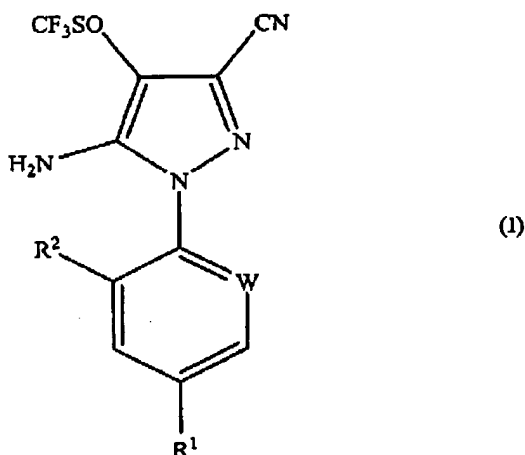
wherein  $R^1$ ,  $R^2$  and W are as defined above, sodium formate, trifluoromethyl bromide and N,N-dimethylformamide, the reaction temperature during the addition of the sulfur dioxide being from about 35°C to about 55°C, the sulfur dioxide being added over a period of from about 0.5 to about 2 hours, the molar ratio of trifluoromethyl bromide to disulfide of formula (III) being from about 3:1 to about 5:1, the amount of sulfur dioxide employed being from about 1.2 to about 1.5 molar equivalents relative to the disulfide of formula (III) and the amount of sodium formate employed being from about 4 to about 6 molar equivalents relative to the disulfide of formula (III).

Claim 31 (original): The process according to Claim 30, wherein the disulfide of formula (III) is 5-amino-1-(2,6-dichloro-4-trifluoromethylphenyl)-3-cyanopyrazol-4-yl disulfide and the compound of formula (II) is 5-amino-1-(2,6-dichloro-4-trifluoromethylphenyl)-3-cyano-4-trifluoromethylthiopyrazole.

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Claim 32 (currently amended): A process for the preparation of a compound having the formula (I):



wherein:

W is ~~nitrogen or~~  $-\text{CR}^3$ ;

$\text{R}^1$  is halogen, haloalkyl, or haloalkoxy ~~haloalkoxy,  $\text{R}^4\text{S}(\text{O})_n$  or  $-\text{SF}_5$~~ ;

$\text{R}^2$  is hydrogen or halogen; and

$\text{R}^3$  is halogen;

~~$\text{R}^4$  is alkyl or haloalkyl; and~~

~~$n$  is 0, 1 or 2;~~

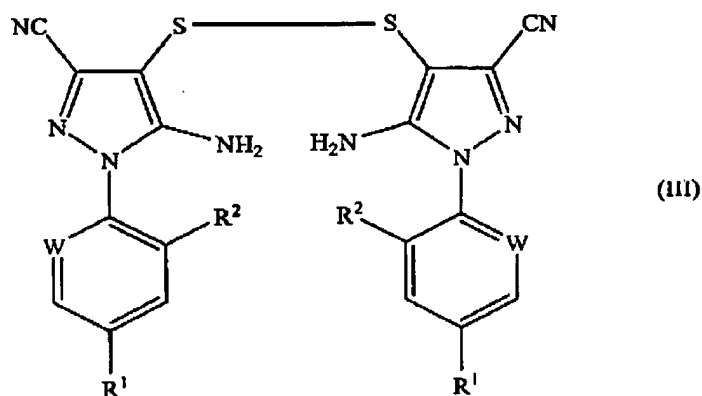
said process comprising:

(a) adding sulfur dioxide to a mixture comprising a disulfide having the formula

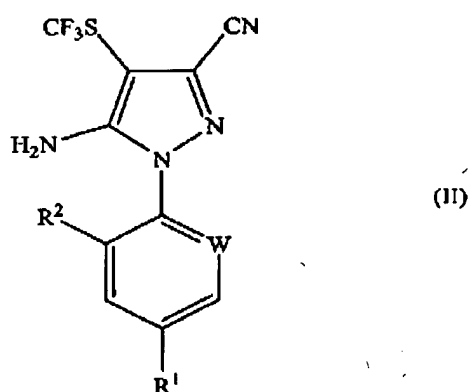
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wherein  $R^1$ ,  $R^2$  and W are as defined above, a formate salt, trifluoromethyl bromide and a polar solvent, to afford a compound having the formula (II):



wherein  $R^1$ ,  $R^2$  and W are as defined above; and

(b) oxidizing the resultant compound of formula (II) with trifluoroperacetic acid in the presence of a corrosion inhibiting compound to afford a compound having the formula (I).

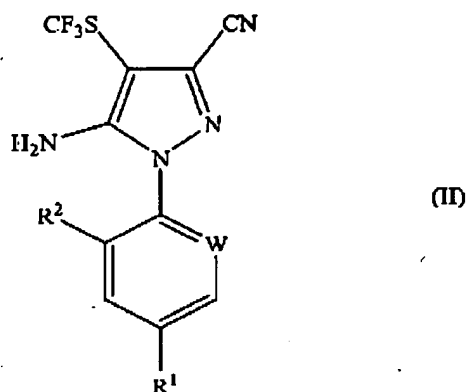
Claims 33-60 (canceled)

Claim 61 (currently amended): A process for the preparation of a compound having the formula (II):



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wherein:

W is ~~nitrogen or~~  $-\text{CR}^3$ ;

$\text{R}^1$  is halogen, haloalkyl, or haloalkoxy haloalkoxy,  $\text{R}^4\text{S}(\text{O})_n$  or  $\text{SF}_5$ ;

$\text{R}^2$  is hydrogen or halogen; and

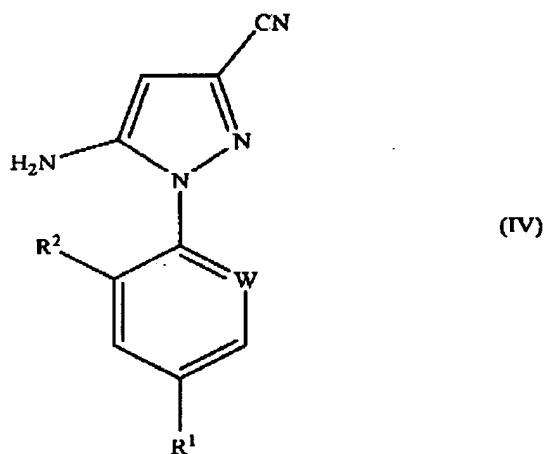
$\text{R}^3$  is halogen;

~~$\text{R}^4$  is alkyl or haloalkyl;~~ and

~~$n$  is 0, 1 or 2;~~

said process comprising:

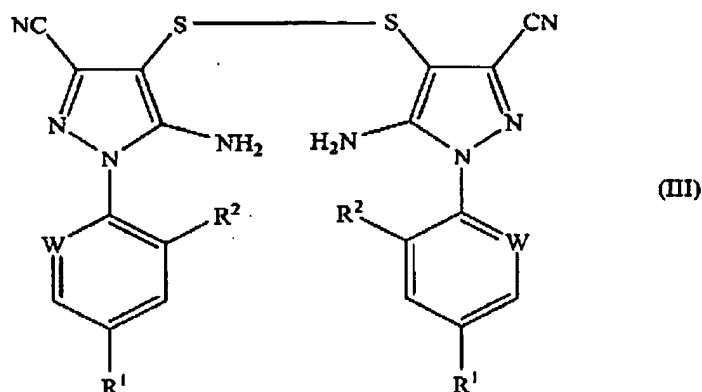
(a) adding sulfur monochloride ( $\text{S}_2\text{Cl}_2$ ) to a solution, in an organic solvent, of a compound having the formula (IV):



wherein  $\text{R}^1$ ,  $\text{R}^2$  and W are as defined above, to afford a disulfide having the formula (III):

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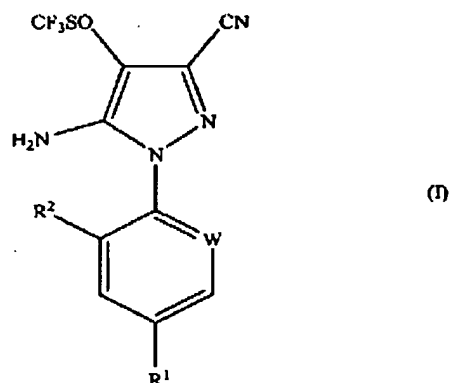


wherein  $R^1$ ,  $R^2$  and W are as defined above; and

(b) adding sulfur dioxide to a mixture comprising the resultant disulfide having formula (III), a formate salt, trifluoromethyl bromide and a polar solvent, to afford a compound having the formula (II).

Claim 62 (original): A process according to Claim 61, wherein the compound of formula (IV) is 5-amino-1-(2,6-dichloro-4-trifluoromethylphenyl)-3-cyanopyrazole, the disulfide of formula (III) is 5-amino-1-(2,6-dichloro-4-trifluoromethylphenyl)-3-cyanopyrazol-4-yl disulfide and the compound of formula (II) is 5-amino-1-(2,6-dichloro-4-trifluoromethylphenyl)-3-cyano-4-trifluoromethylthiopyrazole.

Claim 63 (currently amended): A process for the preparation of a compound having the formula (I):



wherein W is nitrogen or  $-CR^3$ ;

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$R^1$  is halogen, haloalkyl, or haloalkoxy haloalkoxy,  ~~$R^4S(O)_n$  or  $SF_3$~~ ;

$R^2$  is hydrogen or halogen; and

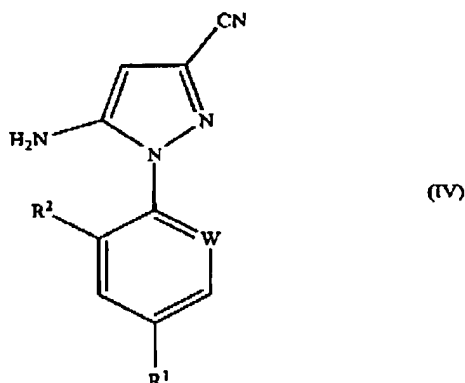
$R^3$  is halogen;

~~$R^4$  is alkyl or haloalkyl; and~~

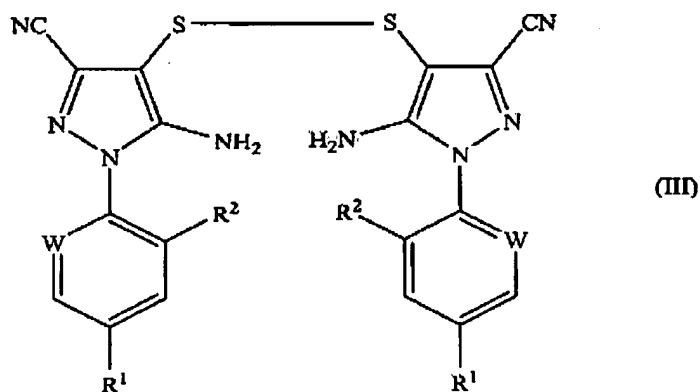
~~$n$  is 0, 1 or 2;~~

said process comprising:

(a) adding sulfur monochloride ( $S_2Cl_2$ ) to a solution, in an organic solvent, of a compound having the formula (IV):



wherein  $R^1$ ,  $R^2$  and W are as defined above, to afford a disulfide having the formula (III):

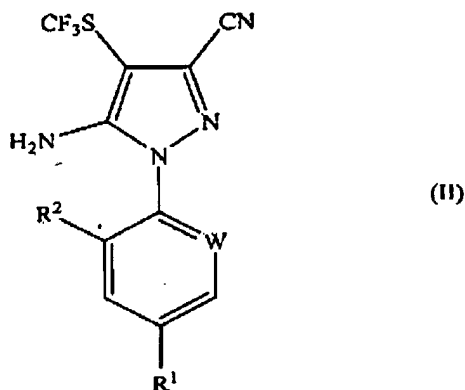


wherein  $R^1$ ,  $R^2$  and W are as defined above;

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(b) adding the sulfur dioxide to a mixture comprising the resultant disulfide having the formula (III), a formate salt, trifluoromethyl bromide and a polar solvent, to afford a compound having the formula (II):



wherein  $R^1$ ,  $R^2$  and W are as defined above; and

(c) oxidizing the resultant compound having the formula (II) with trifluoroperacetic acid in the presence of a corrosion inhibiting compound.

Claim 64 (original): A process according to Claim 63, wherein the compound of formula (I) is 5-amino-1-(2,6-dichloro-4-trifluoromethylphenyl)-3-cyano-4-trifluoromethylsulfinylpyrazole, the compound of formula (II) is 5-amino-1-(2,6-dichloro-4-trifluoromethylphenyl)-3-cyano-4-trifluoromethylthiopyrazole, the disulfide of formula (III) is 5-amino-1-(2,6-dichloro-4-trifluoromethylphenyl)-3-cyanopyrazol-4-yl disulfide, and the compound of formula (IV) is 5-amino-1-(2,6-dichloro-4-trifluoromethylphenyl)-3-cyanopyrazole.

Claim 65 (currently amended): A process according to Claim 1, wherein:

$R^1$  is trifluoromethyl, or trifluoromethoxy or  $-SF_5$ ;

W is  $-CR^3$ ;

$R^2$  is chlorine; and

$R^3$  is chlorine.

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Claim 66 (currently amended): A process according to Claim 30, wherein:

$R^1$  is trifluoromethyl, or trifluoromethoxy ~~or~~  $-SF_5$ ;

W is  $-CR^3$ ;

$R^2$  is chlorine; and

$R^3$  is chlorine.

Claim 67 (currently amended): A process according to Claim 32, wherein:

$R^1$  is trifluoromethyl, or trifluoromethoxy ~~or~~  $-SF_5$ ;

W is  $-CR^3$ ;

$R^2$  is chlorine; and

$R^3$  is chlorine.

Claim 68 (canceled)

Claim 69 (currently amended): A process according to Claim 61, wherein:

$R^1$  is trifluoromethyl, or trifluoromethoxy ~~or~~  $-SF_5$ ;

W is  $-CR^3$ ;

$R^2$  is chlorine; and

$R^3$  is chlorine.

Claim 70 (currently amended): A process according to Claim 63, wherein:

$R^1$  is trifluoromethyl, or trifluoromethoxy ~~or~~  $-SF_5$ ;

W is  $-CR^3$ ;

$R^2$  is chlorine; and

$R^3$  is chlorine.